ACANTHOCEPHALA FROM JAPAN. II. TWO NEW SPECIES OF THE GENUS ACANTHOCEPHALUS[1]

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THREE FIGURES

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To the present time the acanthocephalan fauna of Japan has remained practically unknown. There have been but few papers dealing with this fauna. Very recently Prof. Tamao Fukui (1929) published a noteworthy paper in which he described seven new species from hosts representing all classes of vertebrates except the Amphibia. The one species which he described from a fish was ascribed to the genus *Echinorhynchus* (*E. parasiluri* Fukui). Previously the present writer (Van Cleave, 1925) described four species of the genus *Acanthocephalus* from Japanese hosts only one of which (*A. gotoi* Van Cleave) came from a fish.[2] Thus to the present time acanthocephalans recorded from Japanese fish hosts are limited to two species representing two of the most widely distributed of piscine genera of Acanthocephala.

Through the courtesy of Mr. N. Nakai of the Imperial Fisheries Institute, Fukagawa, Tokyo, I have received two vials of acanthocephalans from trout for identification. Each of these represents an undescribed species of the genus *Acanthocephalus*. The description of these two new species forms the basis of this paper.

Acanthocephalus aculeatus spec. nov.

With the characters of the genus *Acanthocephalus*. Males 4 to 5.4 mm. long, by 0.72 to 0.8 mm. in maximum diameter; females 7

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[1] Contributions from the Zoological Laboratory of the University of Illinois, No. 393.

[2] In the papers apparently overlooked by Dr. Van Cleave two more fish parasites belonging to the genus *Acanthocephala*, *A. echigoensis* Fujita 1920, and *A. onchorhynchi* Fujita 1921 (Dôbutugaku-zassi vol. 31 p. 281; vol. 33 p. 6), have been described from Japan. Both of them are different from the species recorded in this paper—N. Nakai.

to 12 mm. long and 1 to 1.2 mm. in diameter. Body approximately cylindrical. Proboscis of males 0.55 to 0.67 mm. long and 0.19 to 0.29 mm. in diameter; of females 0.7 to 1.1 mm. long by 0.3 to 0.38 mm. in diameter. Receptacle slightly longer than proboscis and lemnisci somewhat longer with 8 to 10 longitudinal rows of 7 or 8 hooks each. Hooks not crowded on proboscis. Longest hooks usually over 110 μ in length, ranging from 94 to 161 μ in different individuals. Hooks at base of some rows distinctly smaller than adjacent hooks; in some instances only 35 μ long, while the next hooks in the same row may be 70 μ long. Embroys within gravid females about 41 to 71 μ long by 6 to 12 μ in diameter.

Type host:—Land-locked form of blue-back salmon (*Onchorhynchus nerka*), Aoki Lake, Shinano Province, Japan.

Type female (Cat. No. 2135.3) in collection of H. J. Van Cleave at Urbana, Illinois. Paratypes in same collection and in collection of the Imperial Fisheries Institute, Tokyo.

The description of this species is based upon an examination of eleven specimens, six males and five females. There is distinct dimorphism in the size of the two sexes.

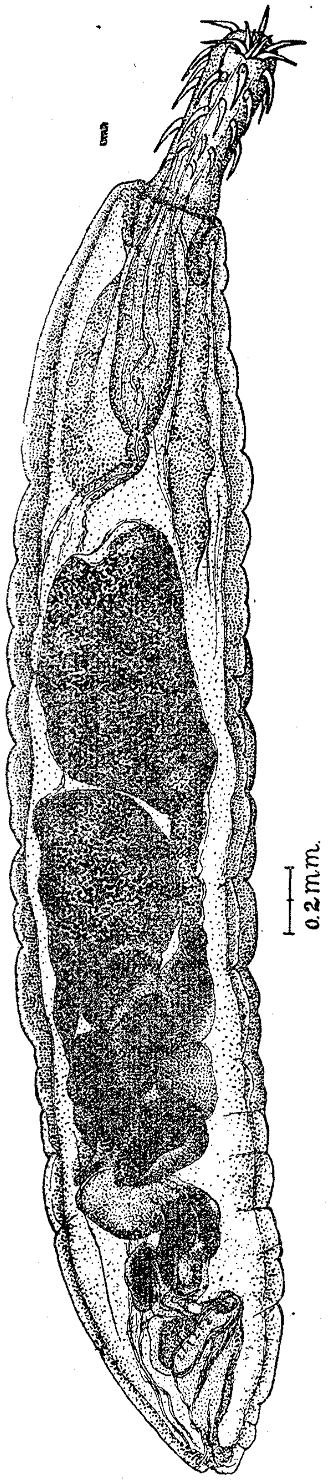

Fig. 1—Entire male of *Acanthocephalus aculeatus* showing arrangement of organs.

But one other species of the genus *Acanthocephalus* has been reported from Japanese fishes up to the present time. This species (*A. gotoi*) has nearly twice as many longitudinal rows of proboscis hooks as found in *A. aculeatus* and also about twice the number in each row.

A. aculeatus rather closely resembles *A. anguillae* from European hosts, but the former has smaller embryos. The proboscis hooks of *A. aculeatus* are distinctly smaller than hooks of specimens of *A. anguillae* sent by Dr. Levander to the author from Finland.

Acanthocephalus acerbus spec. nov.

With the characters of the genus *Acanthocephalus.* Females only observed in a collection of 20 mature specimens. Length 5.1 to 8.8 mm.; maximum diameter from 0.94 to 1.25 mm. Proboscis 0.48 to 0.85 mm. long with a diameter of 0.19 to 0.25 mm., usually about 0.6 mm. long by 0.21 mm. in diameter. Receptacle slightly shorter than length of proboscis. Proboscis armed with twelve longitudinal rows of 6 or 8 hooks each. Longest hooks not over 100 μ usually about 88 μ. Hooks at base of row usually 24 to 41 μ long, while the hook anterior to it is usually 35 to 59 μ long. Embryos 50 to 82 μ long by 12 to 15 μ.

Type host: Rainbow trout (*Salmo iridens*) from rearing ponds at Kizaki Fish Cultural Station, Shinano Province, Japan.

Type female (Cat. No. 2134.5) in collection of H. J. Van Cleave at Urbana, Illinois. Paratypes in same collection and in that of the Imperial Fisheries Institute, Tokyo, Japan.

A. acerbus differs from *A. aculeatus* in having regularly a larger number of longitudinal rows of proboscis hooks and in the fact that these hooks are smaller than *A. aculeatus.* *A. acerbus* has a much smaller number of hooks in each row than are present in *A. gotoi*, the only other member of the genus described from Japanese fish hosts. *A. acerbus* rather closely resembles *A. lucii* from European hosts but regularly has a smaller number of longitudinal rows of hooks, and these hooks are distinctly smaller than the ones observed on specimens of *A. lucii* collected in Finland by Dr. K. M. Levander. *A. lucii* also differs in having embryos significantly longer than those of *A. acerbus*.

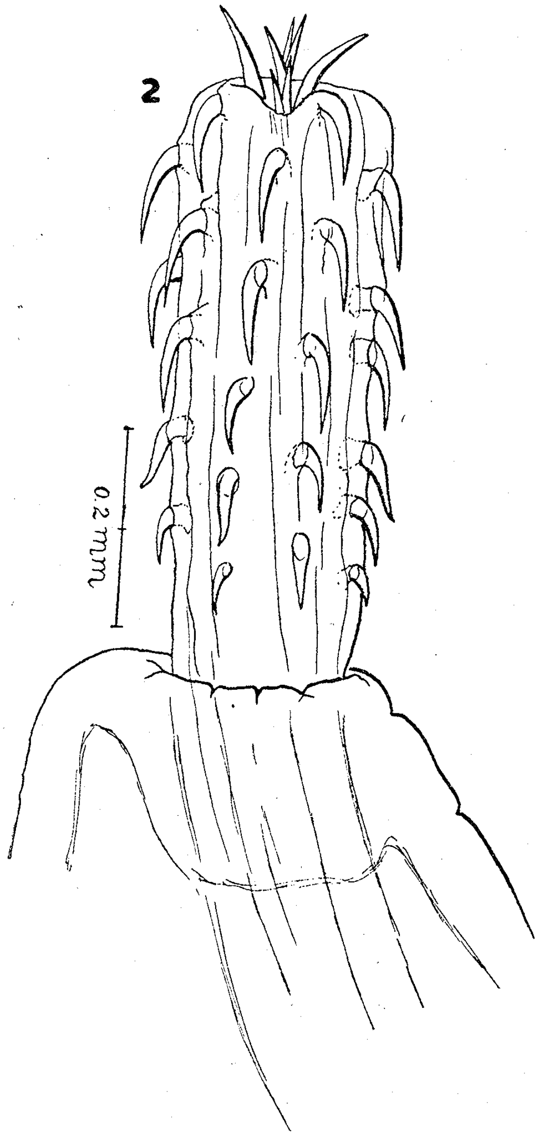

Fig. 2—Proboscis of type male of *A. aculeatus*, showing arrangement of hooks.

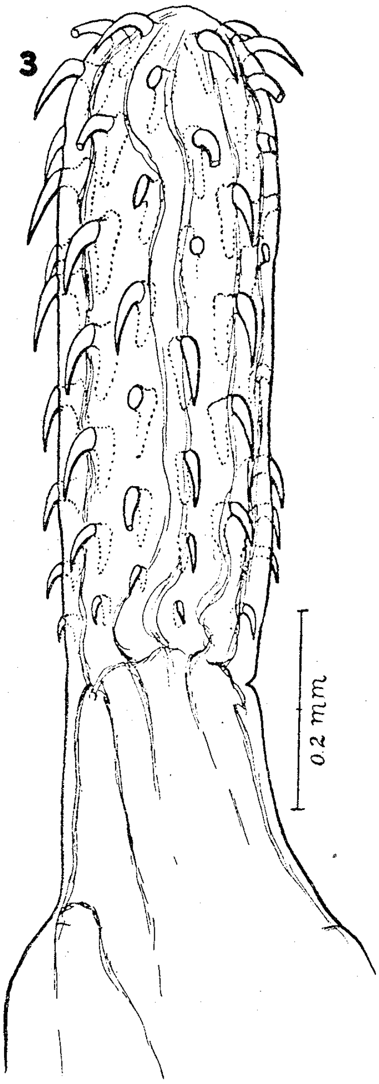

Fig. 3—Proboscis of type female of *A. acerbus* showing arrangement of hooks.

There is no evidence that trout introduced into Japan have carried an acanthocephalan fauna into the new habitat for the species found in trout from Japan seem to be distinctive Japanese species not found in either the European or the American fauna.

REFERENCES

Van Cleave, H. J., 1925. Acanthocephala from Japan. Parasitol. 17: 149-156.

Fukui, T., 1929. On some Acanthocephala found in Japan. Annot. Zool. Japonenses, 12 (1): 255-270.